

USER EXPERIENCE EVALUATION: E-LEARNING@UTM MOBILE  
APPLICATION CASE STUDY

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This dissertation is dedicated to my family for their endless support and encouragement.

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## ABSTRACT

The evolution of Mobile Technologies has caused remarkable transformation on the way mobile devices are used nowadays, from making calls and exchanging short messages (SMSs) to be involved in almost every activity in our daily life such as banking, travelling, entertainment, education, etc. Smartphones along with their computing and connectivity capabilities has increased the demand for mobile applications by end-users. Besides, the open market of mobile applications and the availability of design and development tools, all these make it very easy to everyone to be able to develop a mobile application. However, the end-user who uses this mobile application not only concerned about “what it does”, but also “how it works”. In addition, interaction or expected interaction with certain mobile application creates “experience”. This experience might be in a form of joy, satisfaction, sadness, dissatisfaction, positive or negative experience. Thus, it is very important for developers to evaluate the User Experience (UX) to ensure positive user experience and desirable applications. In this study Anticipated User Experience (AUX) for students to use e-learning@UTM mobile application was evaluated. Students explored two mobile application designs in MS-PowerPoint and were asked to select between them, and then fill an online survey accordingly. An extension of Technology Acceptance Model (TAM) with Enjoyment and Context constructs used to evaluate the anticipated user experience in this study. Majority have chosen the Second prototype and findings revealed that hedonic aspect (Enjoyment) dominated the pragmatic aspects (Usefulness and Ease of Use) behind the intention to use e-learning@UTM mobile application. However, pragmatic aspects were found to be determinants of hedonic aspect.



## ABSTRAK

Evolusi Technologies Bergerak telah menyebabkan transformasi yang luar biasa pada cara peranti mudah alih yang digunakan pada masa ini, daripada membuat panggilan dan bertukar-tukar SMS untuk terlibat dalam hampir setiap aktiviti dalam kehidupan seharian kita seperti perbankan, perjalanan, hiburan, pendidikan, dan sebagainya. Smartphones bersama-sama dengan komputer dan keupayaan sambungan mereka telah meningkat permintaan bagi aplikasi mudah alih oleh pengguna akhir. Selain itu, pasaran terbuka aplikasi mudah alih dan ketersediaan alat reka bentuk dan pembangunan, semua ini menjadikan ia sangat mudah untuk semua orang untuk menjadi mampu untuk membangunkan aplikasi mudah alih. Walau bagaimanapun, akhir-pengguna yang menggunakan aplikasi mudah alih ini bukan sahaja mengambil berat tentang "apakah ia", tetapi juga "bagaimana ia berfungsi". Di samping itu, interaksi atau interaksi jangkaan dengan aplikasi mudah alih tertentu mewujudkan "pengalaman". Pengalaman ini mungkin dalam bentuk kegembiraan, kepuasan, rasa tidak puas hati, positif atau pengalaman negatif. Oleh itu, ia adalah sangat penting bagi pemaju untuk menilai Pengalaman Pengguna untuk memastikan pengalaman pengguna yang positif dan aplikasi wajar. Dalam kajian ini Pengalaman Pengguna Dijangka untuk pelajar-pelajar untuk menggunakan e-learning@UTM aplikasi mudah alih telah dinilai. Pelajar meneroka dua permohonan reka bentuk mudah alih di MS-PowerPoint dan ditanya untuk memilih di antara mereka, dan kemudian mengisi kaji selidik dalam talian dengan sewajarnya. "Technology Acceptance Model" dengan Keseronokan dan Konteks membina digunakan untuk menilai pengalaman pengguna yang dinanti-nantikan dalam kajian ini. Majoriti telah memilih prototaip Kedua dan penemuan menunjukkan bahawa aspek hedonik (Keseronokan) menguasai aspek pragmatik (Kegunaan dan Kemudahan Penggunaan) di sebalik niat untuk menggunakan e-learning@UTM aplikasi mudah alih. Walau bagaimanapun, aspek pragmatik telah didapati menjadi penentu aspek hedonik.

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## **CHAPTER 1**

### **RESEARCH OVERVIEW**

#### **1.1 Introduction**

The evolution of Telecommunications in general and Mobile Technologies in particular (i.e. GSM, UMTS, WiMAX & LTE) and its implication on data speed has caused a booming move on mobile-handsets, that is from low-end devices for making calls and exchanging SMSs to Smartphones which involved in (almost) every activity in our daily life such as banking, travelling, entertainment, education, etc.

Based on IDC (International Data Corporation) statistics, the number of sold Smartphones worldwide in second quarter of 2012 was 153.9 compared to 491.4 a total sales in 2011. Same prediction for second quarter of 2012, Gartner has estimated sales to reach up to 153.8 million Smartphones. Gartner has also reported that total sales for 2011 were 472 million that is 31% of the sales for mobile devices. It is also found that raise in mobile Smartphones almost 58% from 2010 to 2011.

Smartphone differs from feature phone as it has more advanced capabilities in terms of computing and connectivity. These capabilities have made Smartphones to be very common and popular. The main reasons, because Smartphones are able to serve multiple purposes and their accessibility by number of people as a result of affordable prices and wide availability in the market. In addition to computing and

connectivity capabilities, Smartphones have software capabilities which have major contribution to the advancement and transformation of the telecommunication industry in general and mobile in particular. However after end-users had awareness of these capabilities of Smartphones, this awareness has led to the advancement and transformation within the industry and the introduction of iPhone in 2007 is an example.

## **1.2 Problem Background**

Our daily interaction with the surrounding world creates an "experience". This "experience" might be in a form of joy, happiness, satisfaction, sadness, frustration, dissatisfaction, positive experience or negative experience, and so forth. The type of interaction varies from simple to complex based on the object we are interacting with, the context in which we are interacting with that object. And because of the dynamic nature "user experience", it is considered complex.

When it comes to "Evaluation of User Experience", it is to support and help in selecting the best design, to make sure the development is on right track, or to measure and assess whether the final product meets and comply with the original UX targets (Stone et al., 2005). Hassenzahl (2003), there is a need to enrich and have a holistic perspective of traditional usability models to include non-functional concepts such as joy, fun and pleasure. At the same time, literature review on experiential marketing has shown and stressed that a product should not only be considered as providing a set of functional features and benefits, instead it should provide experiences. In addition, customers take functional features, benefits, and product quality as a given. And end users (i.e. Customers) are looking for products "that dazzle their senses, touch their hearts and stimulate their minds" (Schmitt, 1999, p. 22; Hassenzahl, 2003).

An important point is the perception of user experience when it is perceived by a designer and end user. When a designer designs a product, he or she "fabricates" product's attributes such as "interesting" and "useful" by putting together some features like content, functionality, and presentation and interaction style. These attributes are intended by the designer. However, it is not necessary for end user to perceive this product as "interesting" or "useful" the way the designer has done. That's why it is crucial to have better understanding of user experience, its determinants as well as the situation of interaction Hassenzahl (2003). User experience evaluation will allow designers to understand and have an insight about how users perceive and value products. Having this understanding will ensure positive user experience and desirable products.

The rapid development of Telecommunications, the shift towards the "Mobilized Technology", the growing and excessive use of Smartphones on daily basis and Mobile Apps in particular has triggered the need to investigate and evaluate the User Experience (UX) for Mobile Apps users, because in this industry the business is totally user-centric and the competition is very high. As a result understanding of UX is critical and essential for the business to survive and sustain. The outcome of this evaluation for UX will help Mobile Apps developers and companies design and develop in regard to UX. In another words "with UX in mind". Hence, sustain the business as a result; maintain competitive advantage and the market share; with continuous evaluation of UX "user retention" of Mobile Apps can be maintained as well.

### **1.3 Problem Statement**

With the rapid development and advancement in mobile technologies, and the shift of business from service or product oriented to customer-centric. These challenges derived companies not only to focus on "What product do?" but also have insight about the customers (end users) who consider "How product works?".

Therefore and in order to achieve this, thorough understanding of User Experience (UX) should be attained.

In this study, University Teknologi Malaysia (UTM) is about to develop Mobile App for its students to have access to the university's e-learning system which is known as "e-learning@UTM". And currently being on the early stage (before usage), it is very important to gain insight about and be able to design for the user experience. Hence, as the focus is on Mobile Apps and evaluation of anticipated user experience (AUX) for e-learning@UTM Mobile App designs, research question can be formulated as follows:

**How UTM students form evaluation during anticipated experience to use one e-learning@UTM Mobile App over the other?**

#### **1.4 Research Objectives**

1. Identify challenges related to Mobile App development and understand the concept of User Experience (UX) based on literature review.
2. Design Mobile Application Prototype for accessing UTM e-Learning system.
3. Evaluate Anticipated User Experience (AUX) for e-learning@UTM Mobile App.

#### **1.5 Research Scope**

e-learning@UTM is the e-learning system provided by UTM. It is used by different types of users (i.e. students and Instructors). This research will examine the Anticipated User Experience (AUX) of e-learning@UTM Mobile App and the study participants will be UTM students.



## 1.6 Research Significance

According to literature, very few studies about Mobile Apps and UX specifically.

This research may help with the following:

- ✓ Identify the factors and expose to the User Experience (UX) for Mobile Applications before actual usage to ensure positive user experience and desirable products.
- ✓ Help Mobile Applications developers (Companies/UTM) to:
  - Recognize Anticipated User Experience (AUX),
  - Increase the value of their applications by ensuring positive experience as well as desirable applications,
  - Gain more users and/or ensure user retention.
- ✓ The proposed model covers both aspects of UX (Pragmatic and Hedonic).
- ✓ Assist and contribute to e-learning@UTM Mobile Application development.

## 1.7 Chapter Summary

This chapter provided brief introduction about the research to be conducted. Introduction and problem background related to the study were introduced. The problem statement and the research question were defined in this chapter as well. Research objectives in addition to the scope were also explained. The research significance and importance were pointed out.

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